

**TECHNICAL REVIEW DOCUMENT**  
**For**  
**RENEWAL/MODIFICATION OF OPERATING PERMIT 01OPBO238**

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SWG Colorado, LLC  
Valmont Combustion Turbine Facility  
Boulder County  
Source ID 0131460 (*formerly 0130001*)

May - November 2012

Updated January 2013 to address the signing of the final Boiler MACTs

Updated May 2013 to address self certification submittals, CEMS and AIRS ID changes

Operating Permit Engineer:	Blue Parish
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## **I. Purpose**

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewed Operating Permit for the Valmont Combustion Turbine Facility. The previous Operating Permit for this facility was issued on November 1, 2003, was last revised on September 24, 2008 and expired on November 1, 2008. However, since a timely and complete renewal application was submitted, under Colorado Regulation No. 3, Part C, Section IV.C all of the terms and conditions of the existing permit shall not expire until the renewal operating permit is issued and any previously extended permit shield continues in full force and operation. The source submitted a renewal application on October 5, 2007. Following the submittal of the renewal application, the source was issued Construction Permit 09BO0958, and the Division is modifying the Title V permit in order to incorporate the provisions of the construction permit. This significant modification and the renewal are being processed concurrently.

This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted on October 5, 2007, comments on the draft permit submitted on October 1, 2012, previous inspection reports and various email correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.cdphe.state.co.us/ap/Titlev.html>. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural

requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

## **II. Description of Source**

The Valmont Combustion Turbine Facility consists of two combustion turbine generators (CTGs) configured to operate in a simple-cycle mode (exhausts directly to the atmosphere). CT007 has a nominal heat input of 347 MMBtu/hr, CT008 has a nominal heat input of 343 MMBtu/hr based on LHV. CT007 has a nominal electricity production of 38.153 MW at maximum capacity, and CT008 has a nominal electricity production of 40.746 MW at maximum capacity. Each turbine is equipped with a natural gas fired inlet air heater and water injection to control nitrogen oxide emissions.

The facility is located at 1800 North 63rd Street in Boulder. This facility is located in the Denver Metro Area. The Denver Metro Area is classified as attainment/maintenance for particulate matter less than 10 microns in diameter (PM<sub>10</sub>) and carbon monoxide (CO). Under that classification, all SIP-approved requirements for PM<sub>10</sub> and CO will continue to apply in order to prevent backsliding under the provisions of Section 110(l) of the Federal Clean Air Act. The Denver Metro Area is classified as non-attainment for ozone and is part of the 8-hr Ozone Control Area as defined in Regulation No. 7, Section II.A.1.

There are no affected states within 50 miles of the plant. Rocky Mountain National Park and Eagle's Nest National Wilderness Area are Federal Class I designated areas within 100 kilometers of the plant.

**Prior To October 1, 2012:** The Valmont Combustion Turbine Facility operates for the purpose of generating power during intermediate and peak periods of electrical demand at the Valmont Power Plant (a coal-fired power plant at the same location, issued to Public Service Company). A separate Operating Permit has been issued for each operating company, however, the Valmont Combustion Turbine Facility and the Valmont Power Plant are considered to be a single stationary source for purposes of New Source Review (NSR) pre-construction permitting requirements and Title V Operating Permitting requirements.

**Beginning October 1, 2012:** The Power Purchase Agreement (PPA) between the operators of the Valmont Power Plant and SWG Colorado, LLC (SWG) will expire on September 30, 2012. When the PPA expires, the Valmont Combustion Turbine Facility will be classified as a separate source from the power plant.

Non-Attainment New Source Review (NANSR) and Prevention of Significant Deterioration (PSD)

**Prior to October 1, 2012:**

These turbines are located at a fossil fuel-fired steam electric plant of more than 250 million Btu per hour input and the facility is therefore categorized as a major stationary source (Potential to Emit > 100 Tons/Year).

This facility is categorized as a NANSR major stationary source (Potential to Emit of VOC or NO<sub>x</sub> ≥ 100 TPY). Future modifications at this facility resulting in a significant net emissions increase (see Reg 3, Part D, Sections II.A.26 and 42) for VOC or NO<sub>x</sub> or a modification which is major by itself (Potential to Emit of ≥ 100 TPY of either VOC or NO<sub>x</sub>) may result in the application of the NANSR review requirements.

This facility is categorized as a PSD major stationary source (Potential to Emit ≥ 100 TPY for PM, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> and CO). Future modifications at this facility resulting in a significant net emissions increase (see Reg 3, Part D, Sections II.A.26 and 42) or a modification which is major by itself (Potential to Emit of ≥ 100 TPY) for any pollutant listed in Regulation No. 3, Part D, Section II.A.42 for which the area is in attainment or attainment/maintenance may result in the application of the PSD review requirements

**Beginning October 1, 2012:**

Based on the information provided by the applicant, this source is categorized as a minor stationary source for both NANSR and PSD as of October 1, 2012.

For NANSR, any future modification at this facility which is major by itself (i.e. a Potential to Emit of ≥ 100 TPY of either VOC or NO<sub>x</sub>) may result in the application of the NANSR review requirements.

For PSD, any future modification at this facility for which is major by itself (Potential to Emit of ≥ 250 TPY<sup>1</sup>) for any pollutant listed in Regulation No. 3, Part D, Section II.A.42 for which the area is in attainment or attainment/maintenance may result in the application of the PSD review requirements.

Emissions for the facility are shown on Attachment A at the end of this document.

**III. Construction Permit 09BO0958, Modification No 1**

On August 31, 2010, SWG submitted a request to increase the operational limits on the Valmont Combustion Turbine Facility. At that time, total facility operations were restricted to 39 tpy of NO<sub>x</sub> emissions by Operating Permit 01OPBO238 (issued November 1, 2003 and last revised on September 24, 2008) as well as the initial issuance of Construction Permit 09BO0958 (issued March 8, 2010). The original NO<sub>x</sub> limit of 39 tpy allowed the turbine facility to be constructed without being defined as a

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<sup>1</sup> The 250 tpy threshold instead of the 100 tpy threshold will apply because the facility will no longer be co-located with one of the 28 listed source categories under Reg 3, Part A, Section II.A.24.a.(i).

major modification to an existing major stationary source (the coal-fired power plant) for NSR purposes. The facilities were considered to be a single source at the time the turbine facility was constructed because: (1) both facilities fall under the same 2-digit SIC grouping, (2) the SWG facility is located within the Valmont Power Plant property (co-located), and (3) a common control relationship existed between the two facilities due to the fact that a Power Purchase Agreement (PPA) allowed Public Service Company to directly control operation of the SWG facility.

Upon expiration of the PPA, Public Service Company will no longer have the ability to control operations at the SWG Valmont Combustion Turbine Facility. At this point, the turbine facility is considered to be a separate source from the power plant because it no longer meets all three of the requirements for aggregation as a single source described above (i.e., the common control relationship no longer exists). Therefore, upon expiration of the PPA, the turbine facility will no longer be considered to be part of a major stationary source, or a synthetic minor modification to a major stationary source. SWG requested a modification to be allowed to increase operational limits, beginning at the time that the PPA expires. The PPA is scheduled to expire on September 30, 2012.

The Division issued construction permit 09BO0958 (modification no. 1) on April 27, 2012. The permit preserves the current operational and emission limitations until October 1, 2012, and then allows an increase in operations. The post-PPA limits include a new facility-wide NO<sub>x</sub> limit of 78.0 tpy (an increase of 39.0 tons per year).

The due date of the first semiannual monitoring and deviation report required by this operating permit will be more than 180 days after the initial approval construction permit 09BO0958 was issued and/or the modification approved by that permit will take place. Therefore, under the provisions of Regulation No. 3, Part C, Section V.A.2., the Division is allowing the initial approval construction permit to continue in full force and effect and will consider the Responsible Official certification submitted with that report to serve as the demonstration required pursuant to Regulation No. 3, Part B, Section III.G.2. and no final approval construction permit will be issued.

The appropriate provisions of the initial approval construction permit have been directly incorporated into this operating permit. In general, permit 09BO0958 includes two sets of requirements: (1) requirements that apply prior to October 1, 2012, and (2) requirements that apply beginning October 1, 2012 (which marks the expiration of the PPA and the effective date of the requested modification to increase operations). The operating permit also separates conditions that are applicable prior to October 1, 2012 (Section II, Condition 1) and requirements that are applicable beginning October 1, 2012 (Section II, Condition 2). The requirements are incorporated as follows:

- Condition 1: Self-certification with the permit conditions is required by April 1, 2013 (this corresponds to 180 days following the October 1, 2012 modification to increase operation).

Note that submittal of the first semiannual monitoring report due on or after October 1, 2012 will serve as the self-certification. Because the modification involves only an increase in the permit limit, the source should be able to certify compliance in the first semiannual report, even if that report is due prior to April

1, 2013. **UPDATE:** The Division received the self certification on March 14, 2013, this condition will not be included in the permit.

- Condition 2: This permit shall expire if the source does not commence modification within 18 months.

This condition has been streamlined out (see discussion in Section VIII below).

- Condition 3: The permit number and AIRS ID number shall be marked on the subject equipment for ease of identification.

This is a construction permit-only requirement and was not included in the operating permit.

- Condition 4: Review the O&M Plan defining good combustion practices

This source is subject to the general duty provisions under NSPS, which require owners and operators to maintain and operate the facility and control equipment consistent with good air pollution control practices for minimizing emissions. The Division considers that this NSPS requirement establishes good combustion practices and will streamline out the O&M Plan condition.

- Conditions 5 – 7: Facility-wide emission limits and associated compliance monitoring methods (both prior to October 1, 2012 and beginning October 1, 2012)

Construction Permit 09BO0958 includes a new limit for PM<sub>2.5</sub> applicable beginning October 1, 2012, and notes that PM and PM<sub>10</sub> include condensables. The operating permit will note that PM<sub>2.5</sub> should also include condensables (Regulation No. 3, Part D, II.A.38.g)

- Condition 8: NO<sub>x</sub> and CO emissions from all insignificant activities shall not exceed one ton per year and shall be tracked on a yearly basis.

This requirement is from the originally issued operating permit, and it is presumed that the one ton per year value was selected because the NO<sub>x</sub> limit was set one ton below the NO<sub>x</sub> significance level (40 tpy) that would require major modification review under NSR. The CO limit, however, is not within 1 tpy of the significance level (100 tpy). The language will be revised in the renewal to the Division's current standard language for tracking and calculating insignificant emissions when limits are within 10% of threshold values (see Permit Section Memo PS 97-1, <http://www.cdphe.state.co.us/ap/down/Ps97-001.pdf>).

- Conditions 9 and 10: Facility-wide limits on natural gas consumption (both prior to October 1, 2012 and beginning October 1, 2012)

The operating permit will also include explicit requirements for monitoring fuel consumption in accordance with Part 75.

- Condition 11: BTU content of natural gas – to be determined monthly

- Conditions 12 & 13: Colorado Regulation No. 1 opacity requirements: 20% (Section II.A.1) except during periods of building of a new fire, cleaning of fire boxes, soot blowing, process modification or adjustment or occasional cleaning of control equipment (Section II.A.4).
- Condition 14: Colorado Regulation No. 6, Part B, Section II.C.3 opacity requirements (state-only enforceable): 20% at all times except during startup, shutdown or malfunction

See Section VIII below for a description of streamlining opacity requirements.

- Condition 15: RACT requirements for PM<sub>10</sub> – only pipeline-quality natural gas shall be used as fuel in the turbines, duct burners and inlet air heaters.

The operating permit will reference requirements for maintaining records demonstrating that the fuel meets the definition of pipeline quality natural gas in 40 CFR Part 72.

- Conditions 16 & 17: Particulate Matter Standards from Colorado Regulations 1 and 6:

The regulation No. 1 standards have been updated to include numerical values, and have been used to streamline out the Reg 6 standards. See Section VIII for further details.

- Conditions 18 & 19: SO<sub>2</sub> Standards from Colorado Regulations 1 and 6 (0.35 lb/MMBtu):

The Regulation No. 6 standards have been streamlined out in favor of Reg 1; See Section VIII for further details.

- Condition 24: NSPS Subpart GG fuel sulfur requirements

The construction permit includes requirements from §60.334 for demonstrating that the fuel meets the requirements of natural gas. The operating permit has streamlined this requirement out in favor of the Part 75 requirement for pipeline quality natural gas. See Section VIII for further details.

- Conditions 21 & 22: NO<sub>x</sub> RACT limits – applicable prior to October 1, 2012

Construction Permit 09BO0958 was initially issued on March 8, 2010 in order to allow the facility to make a permanent turbine replacement (the replaced turbine was not previously subject to NO<sub>x</sub> RACT requirements). The permit established a NO<sub>x</sub> RACT limit for the replacement turbine on a 1-hr average basis, but defined startup and shutdown such that they extended to the end of every clock hour in which they occurred (i.e., no partial hours of startup/shutdown are possible according to the definition).

As a part of Modification No. 1 to 09BO0958 (issued April 27, 2012), the Division re-evaluated the NO<sub>x</sub> RACT limit and determined that the 42 ppmvd value was still appropriate, but re-defined startup and shutdown definitions so that they do

not allow startup and shutdown to be extended to the end of a clock hour. The construction permit included this as an applicable requirement beginning October 1, 2012. The operating permit renewal will include the new, partial-hour startup/shutdown definitions in the conditions that apply beginning October 1, 2012.

Additionally, the operating permit will also apply the new startup/shutdown definitions to the RACT requirements that apply prior to October 1, 2012. The issuance of the renewal operating permit will not occur until after October 1, 2012, and so the only purpose of the pre-October 1, 2012 requirements is to be a backsliding provision in the event that the turbine facility and coal-fired power plant become re-aggregated through a future or extended power purchase agreement. In this scenario, the new definitions of startup/shutdown should survive (note that the Division would have updated these definitions in the renewal even in the absence of PPA expiration in order to bring the conditions into compliance with current Division policy).

- Condition 23: NSPS Subpart GG NO<sub>x</sub> limits

The renewal permit will streamline out the Subpart GG NO<sub>x</sub> limit in favor of the RACT limit. See section VIII for details.

- Conditions 24 and 25: Monitor and control parameters indicative of good combustion practices (VOC and CO RACT Limits)

The renewal permit is updating the RACT definitions to include specific monitoring, operating and maintenance requirements (see Section IV below for further details).

- Condition 26: Regulation No. 6, Part A, Subpart A, General Provisions

Note that the construction permit includes an extensive list of the 40 CFR Part 60 Subpart A general provisions (as adopted into Regulation No. 6), including: Recordkeeping and Reporting, Compliance with Standards and Maintenance Requirements, Circumvention, and Monitoring Requirements. The Recordkeeping and Reporting and Monitoring Requirements are included in the operating permit as periodic monitoring or under the continuous emission monitoring requirements and will not be identified as specific requirements under the general NSPS provisions.

- Condition 27 – Continuous Emission Monitoring System Requirements

The construction permit and the previously issued operating permit require CEMS to continuously monitor and record NO<sub>x</sub> and CO concentrations (ppmvd) and O<sub>2</sub> concentrations (%O<sub>2</sub>, ppmvd). The previous permits included more generalized statements requiring the CEMS to provide emission data to estimate monthly and 12-month rolling total emissions for use in monitoring compliance with annual emission limits. The Division is updating the requirements in the renewal permit to more explicitly require the CEMS to monitor in units of all applicable standards (i.e., ppmvd, tons per month), and to require the associated

relative accuracy testing in units of all applicable standards. The operating permit will also explicitly require the CEMS to record operating mode (startup/shutdown).

The Division is also updating CEMS requirements in the permit to clarify the quality assurance/quality control and relative accuracy testing requirements for both the CO and NO<sub>x</sub> monitors.

- Condition 28 cancels previous versions of the construction permit; this condition is not included in the operating permit
- Condition 29 includes requirements for submitting revised Air Pollutant Emission Notices (APENs); this requirement is part of the Operating Permit general conditions and therefore is not directly incorporated.
- Condition 30 requires the owner or operator to submit an application to modify the operating permit to incorporate the provisions of the construction permit.

This renewal permit already incorporates Construction Permit 09BO0958 and the application requirement is no longer applicable.

- Condition 31 - source obligation/relaxation requirements under Regulation No. 3, Part D, Section V.A.7.b (nonattainment area requirements)

This condition may become applicable during future modifications, but is not a currently applicable requirement. The condition will not be directly incorporated into the operating permit; all potentially applicable requirements will need to be evaluated on a case-by-case basis prior to any future modifications.

- Conditions 32 and 33 – emission limits, fuel use limits and insignificant emission tracking requirements revert to the pre-October 1, 2012 requirements if the Valmont Combustion Turbine Facility extends, renews or creates a new power purchase agreement with the owners or operators of the Valmont Power Plant.

The ability of the turbine facility to undertake the modification authorized by 09BO0958 relies on the de-aggregation of the facility from the power plant such that it is no longer considered to be operating under limits that allowed it to avoid classification as a major modification to a major stationary source. Any future re-aggregation would require the original synthetic minor limits to be reinstated.

#### **IV. Other Applicable Requirements**

##### CAM

The turbines are not Large Pollutant Specific Emission Units (post-control emissions are not greater than the major source threshold); therefore CAM plans were not required as part of the initial operating permit application. A CAM plan is also not required for the turbines as part of the renewal application, because the current Title V permit specifies a continuous compliance determination method via the CEMS for NO<sub>x</sub> and CO.



### CO RACT Limits and Parametric Monitoring

The previous version of the operating permit included the following condition (Section II, Condition 1.6) with respect to RACT for CO:

The applicant shall monitor and control several operating parameters which will constitute “good combustion practices.” These operating parameters, which are indicative of turbine performance with respect to CO emissions include, but are not limited to air and fuel ratio, level of excess air and concentration of CO in the flue gas. The optimal operating ranges of these parameters shall be established and identified and shall be included in the operation and maintenance plan within three months of the issuance date of this permit.

Permit 09BO0958 included Good Combustion Practices as the RACT requirement, and specified that the applicant would monitor and control operating parameters indicative of turbine performance with respect to CO emissions in the most recent Division-approved Operation and Maintenance Plan.

The initial operating permit for the Arapahoe Combustion Turbine Facility (01OPDE237, issued July 1, 2005 to the same permittee as the Valmont facility) included almost the same requirement for establishing good combustion practices with respect to CO RACT during simple cycle operation. The Arapahoe turbines are the same make and model as the Valmont units, however the Arapahoe installation also includes heat recovery steam generators that allow the turbines to selectively run in combined cycle mode. The Arapahoe operating permit required the permittee to submit the operating parameters associated with good combustion practices to the Division for approval, while the Valmont operating permit required only that they be included in an operations and maintenance plan.

The Division believes it is appropriate to establish an actual CO RACT limit at Valmont and to explicitly include the appropriate monitoring and recordkeeping as permit conditions (as was done for Arapahoe). Therefore, the same CO limit (100 ppmvd on a 1-hr average) and startup/shutdown definitions that were established for the Arapahoe permit (during simple cycle mode only) are proposed for Valmont. The justification for the Arapahoe determination is included as Attachment B.

The general requirements to follow good engineering practices, manufacturer’s guidelines and good combustion practices included in various places in the previous operating permit, construction permit 09BO0958 and correspondence with the Division regarding RACT parametric monitoring procedures have been streamlined out in favor of the NSPS general duty provisions.

### VOC RACT Limits and Parametric Monitoring

The previous version of the operating permit included the following condition (Section II, Condition 1.6) with respect to RACT for VOC:

The applicant shall monitor and control several operating parameters which will constitute “good combustion practices.” These operating parameters, which are indicative of turbine performance with respect to VOC emissions include, but are

not limited to air and fuel ratio and level of excess air. The optimal operating ranges of these parameters shall be established and identified and shall be included in the operation and maintenance plan within three months of the issuance date of this permit.

The operating parameters identified are the same as those for CO as described above. Therefore, the renewal operating permit will use the CO startup/shutdown definitions, operating, maintenance and recordkeeping requirements described with respect to the VOC RACT requirements. The renewal operating permit will also include the requirement to use pipeline quality natural gas as RACT, which was not explicitly included in the previous Valmont permits but has been in the Arapahoe operating permit since its initial issuance.

#### 40 CFR Part 63 Subpart DDDDD – the Major Source Boiler MACT

Prior to the expiration of the Power Purchase Agreement, the Valmont Combustion Turbine Facility is part of a major source of hazardous air pollutants (because it is considered to be a single source with the Valmont Power Plant). The facility will no longer be a single source with the power plant as of October 1, 2012, and will become a non-major source of HAP on that date (see Attachment A at the end of this document for details on HAP potential to emit for both facilities). Note that under EPA's Once In Always In policy, major source MACT rules will continue to apply to sources that later become non-major HAP sources, if the compliance date of the MACT has already occurred prior to the date on which the facility is reclassified as minor. All of the potential compliance dates for the Major Source Boiler MACT rule (Subpart DDDDD) will occur after October 1, 2012 (as described further below); therefore, the Once In Always In policy will not cause Subpart DDDDD requirements to apply to the Valmont Combustion Turbine facility on or after October 1, 2012.

Subpart DDDDD applies to industrial, commercial or institutional boilers and process heaters at major sources of HAP. EPA published Subpart DDDDD as a final rule on March 21, 2011 (76 FR 15608). On the same day, EPA also published a proposed notice of reconsideration of Subpart DDDDD (76 FR 15249). On May 18, 2011, EPA delayed the effective dates for the March 21, 2011 version of Subpart DDDDD "until the proceedings for judicial review of these rules are completed or the EPA completes its reconsideration of the rules, whichever is earlier" (76 FR 28662). The reconsideration of the rule was then published on December 23, 2011 as a new proposed rule (76 FR 80598). However, on January 9, 2012, the U.S. District Court for the DC circuit vacated the delay of the effective dates of the March 2011 rule.

The March 2011 version of the rule required sources that started up before May 20, 2011 to submit an initial notification by September 17, 2011. Since the delay was published before this date, many sources did not submit initial notifications. The vacatur of that delay did not occur until after the date on which the original initial notification was due. Therefore, sources that had originally relied on the delay found themselves out of compliance with the September 17, 2011 deadline as soon as the vacatur took place on January 9, 2012. To address this situation, EPA issued a No Action Assurance (NAA)

letter<sup>2</sup> on February 7, 2012, which provided assurance that no action would be taken for failure to submit an initial notification by the date required. This no action assurance will be in effect until December 31, 2012 or until the effective date of the final rule addressing the proposed reconsideration Subpart DDDDD. EPA has stated in this letter that they intend to finalize the reconsideration in the spring of 2012.

In the event that the proposed reconsideration is finalized in the near future, the December 23, 2011 version of the rule will become effective. In this version of the rule, the definition of Process Heaters could potentially apply to the inlet air heaters. The compliance date in the proposed reconsideration rule for existing sources is three years after the publication date (§63.7495(b)), which has not yet occurred. Because the combustion turbine facility is scheduled to be a minor source of HAPs as of October 1, 2012 based on the expiration of the PPA, the December 23, 2011 version of Subpart DDDDD requirements are not included in the permit.

Note that until the proposed reconsideration of the rule becomes effective and prior to reclassification as a minor source of HAP, the Valmont Combustion Turbine Facility continued to be subject to the March 2011 version of the rule. The NAA letter provides no action assurance *only* for the initial notification requirements. The remaining requirements in the rule still applied. However, the compliance date under the March 2011 version of the rule for boilers and process heaters constructed on or before June 4, 2010 is March 21, 2014 (§63.7495(b)), at which time the source will be considered to be a minor source of HAP. Therefore, the requirements of the March 2011 version of the rule, which will eventually be superseded, will not be included in the permit.

#### 40 CFR Part 63 Subpart JJJJJJ – the Area Source Boiler MACT

Subpart JJJJJJ to Part 63 includes standards for industrial, commercial and institutional boilers at area sources. EPA published Subpart JJJJJJ as a final rule on March 21, 2011 (76 FR 15554). On the same day, EPA also published a proposed notice of reconsideration of Subpart JJJJJJ (76 FR 15249). The May 18, 2011 delay of effective dates for the major source boiler rule (described above) did not apply to the area source rule. The reconsideration of the final area source rule was published on December 23, 2011 (76 FR 80532).

The March 2011 version of the rule does not include requirements for process heaters. The December 23, 2011 version of the rule included additional language in order to be more explicit about excluding process heaters from the definition of boilers. Therefore, neither the March 2011 nor the December 2011 versions of Subpart JJJJJJ will apply to the inlet air heaters at the time that the Valmont Combustion Turbine facility becomes an area source of HAP on October 1, 2012.

**UPDATE:** EPA signed the final Boiler MACT rules on December 20, 2012. At that point in time, the PPA had expired and the Valmont combustion turbine facility was an area source of HAPs. None of the final changes in the signed version of Subpart JJJJJJ affect the applicability described above.

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<sup>2</sup> [http://www.epa.gov/ttn/atw/boiler/boiler\\_ciswi-no\\_action\\_2012-02-07.pdf](http://www.epa.gov/ttn/atw/boiler/boiler_ciswi-no_action_2012-02-07.pdf)

#### 40 CFR Part 60 Subpart TTTT – Greenhouse Gas NSPS for EGUs

Subpart TTTT applies only to electric utility generating units that commenced construction after April 13, 2012.

#### Greenhouse Gases

**Beginning October 1, 2012:** The potential-to-emit of greenhouse gas (GHG) emissions from this facility is greater than 100,000 TPY CO<sub>2</sub>e. Future modifications greater than 75,000 tons per year CO<sub>2</sub>e may be subject to regulation (Regulation No. 3, Part A, I.B.44).

### **V. Emission Factors**

The renewal permit retains the emission factors from the previously issued operating permit, and includes additional emission factors used for monitoring compliance with new PM<sub>2.5</sub> emission limits. PM<sub>2.5</sub> emission factors are presumed to be equal to PM<sub>10</sub> emission factors (note that under Regulation No. 3, Part D, II.A.38.g, PM<sub>2.5</sub> and PM<sub>10</sub> both include condensables).

### **VI. Monitoring Plan**

Compliance with the annual emission and throughput limitations shall be monitored by recording natural gas throughput for each unit monthly and calculating emissions, except that CO and NO<sub>x</sub> emissions from the turbines/duct burners are monitored using a CEMS. The CEMS is also used to monitor compliance with concentration-based NO<sub>x</sub> and CO RACT and NSPS limits. Compliance with heat input-based (lb/MMBtu) standards for PM and SO<sub>2</sub> is presumed for these natural-gas only sources since only pipeline quality natural gas is permitted to be used as fuel.

### **VII. Compliance Status**

In the Title V permit application, the source indicated that the facility is in compliance with all applicable requirements.

On July 16, 2010, the facility submitted a report of an excess emission event that occurred on June 5, 2010. The facility had recently upgraded the CEMS to address the new NO<sub>x</sub> RACT limit in permit 09BO0958. An error in the programming logic was discovered that did not re-start the NO<sub>x</sub> water pump after the gas compressors were tripped off line due to a high pressure surge. The CEMS code has since been reprogrammed. The Division determines that appropriate actions have been taken with respect to this incident and that no additional requirements in the permit are necessary.

The Division completed a full compliance evaluation at the facility on May 26, 2011; the source was determined to be in compliance at that time.

## **VIII. Streamlining of Applicable Requirements**

### SO<sub>2</sub>

The turbines are subject to the Regulation No. 1 and Regulation No. 6, Part B, SO<sub>2</sub> requirements. The Regulation No. 1 and No. 6, Part B SO<sub>2</sub> standards are the same, 0.35 lb/MMBtu. (Note: The Regulation No. 1 requirement specifically states that the standard is based on a three hour average. The Regulation No. 6, Part B requirement does not specify an averaging time. When Regulation No. 6, Part B provisions were adopted, the Division intended them to reflect the Regulation No. 1 provisions for new sources. Therefore, the Division considers the averaging time for the Regulation No. 6, Part B limit is also 3 hours.) The Regulation No. 6, Part B requirement is a state-only requirement. Regulation No. 6, Part B, Section I.A adopts by reference the 40 CFR Part 60 Subpart A general provisions. Although not specifically stated in the general provisions, the Division has concluded after reviewing EPA determinations that the NSPS standards are not applicable during startup, shutdown and malfunction, although any excess emissions during these periods must be reported in the excess emission reports. Specifically, the EPA has indicated, (4/18/75, determination control No. A007) that when 40 CFR Part 60 Subpart A Section 60.11(d) was developed "...it was recognized that sources which ordinarily comply with the standards may during periods of startup, shutdown and malfunction unavoidably release pollutants in excess of the standards." In addition, the EPA has also indicated (5/15/74, determination No. D034) that "[s]ection 60.11(d)(a) makes it clear that the data obtained from these reports are not used in determining violations of the emission standards. Our purpose in requiring the submittal of excess emissions is to determine whether affected facilities are being operated and maintained 'in a manner consistent with good air pollution control practices for minimizing emissions' as required by 60.11(d)." Therefore, the Division considers that the Regulation No. 6, Part B SO<sub>2</sub> requirements do not apply during periods of startup, shutdown and malfunction. Therefore, the Regulation No. 1 SO<sub>2</sub> requirement is more stringent than the Regulation No. 6, Part B requirement and the Regulation No. 6, Part B requirement is streamlined out of the permit.

### PM

Colorado Regulation No 6, Part B, Section II.C.2 (State-only enforceable) includes PM standards for the turbines and inlet air heaters. Colorado Regulation No. 1 also includes the same PM standards (Section III.a.1.b). The Reg 6 standard applies at all times except during startup, shutdown and malfunction; the Reg 1 standard applies at all times. Therefore the Regulation 6 standards are streamlined out in favor of the Reg 1 standards.

### Opacity

The turbines and inlet air heaters are subject to Colorado Regulation No. 1 opacity standards. Section II.A.1 (20% opacity) applies at all times, except for certain specific operating conditions under which Section II.A.4 (30% opacity) applies. The turbines, and inlet air heaters are also subject to the state-only Reg 6, Part B 20% opacity requirement. Reg 6, Part B, Section I.A, adopts, by reference, the 40 CFR Part 60 Subpart A general provisions. 40 CFR Part 60 Subpart A § 60.11(c) specifies that the

opacity requirements are not applicable during periods of startup, shutdown and malfunction. The Reg 1 20% / 30% requirements are more stringent than the Reg 6 Part B opacity requirements during periods of startup, shutdown and malfunction. While the Reg 6, Part B 20% opacity requirement is more stringent during fire building, cleaning of fire boxes, soot blowing, process modifications and adjustment or occasional cleaning of control equipment. Therefore, since no one opacity requirement is more stringent than the other at all times, all Reg 1 and Reg 6 opacity requirements are included in the operating permit.

It should be noted that since the turbines and inlet air heaters use pipeline quality natural gas as fuel, the Division will presume, in the absence of credible evidence to the contrary, that these units are in compliance with all of the opacity requirements.

### NO<sub>x</sub>

Since the previous issuance of the operating permit, a new NO<sub>x</sub> RACT limit of 42 ppmvd on a one hour average has become applicable (due to the permanent replacement of an existing unit as described above). The RACT limit is more stringent than the 117.8 ppmvd, 4-hr average NO<sub>x</sub> limit from 40 CFR 60 Subpart GG. Therefore, the Subpart GG limit will be streamlined out of the permit. Note that streamlined conditions are subsumed within the requirements identified in Section II of the permit. For purposes of compliance demonstration, compliance with the conditions in Section II of the permit also serve as compliance demonstration for the subsumed condition. Since the NSPS GG NO<sub>x</sub> limit has been streamlined out in favor of the RACT NO<sub>x</sub> limits, the source may wish to retain records used to calculate 4-hr NO<sub>x</sub> averages at ISO standard ambient conditions, in the event that the NO<sub>x</sub> RACT limit is violated at such a level that compliance with the NSPS GG limit is uncertain.

### NSPS Subpart GG Monitoring – Sulfur Content in Fuel

Under the Acid Rain provisions, sources that demonstrate that the gas burned meets the definition of pipeline quality natural gas may use an emission factor to calculate hourly SO<sub>2</sub> emissions in lieu of monitoring, as allowed by 40 CFR Part 75 Appendix D. NSPS GG specifies that no fuel sampling is required if natural gas is used as fuel. Since these turbines burn *pipeline* quality natural gas, which has a lower sulfur content by definition than natural gas, the methods to demonstrate that natural gas is used as fuel will be streamlined out in favor of the Part 75 *pipeline* quality natural gas requirement.

### NSPS Subpart GG Monitoring & Excess Emissions Reporting

NSPS Subpart GG defines excess emissions with respect to the NO<sub>x</sub> standard in §60.334(j)(1)(iii), which are based on a 4-hour rolling average. This requirement is streamlined out in favor of the monitoring associated with the 1-hr NO<sub>x</sub> RACT limit.

Excess emission reports (EERs) for NO<sub>x</sub> under Subpart GG were required quarterly by the previous version of the operating permit and Construction Permit 09BO0958 (note that Subpart GG currently requires semi-annual EERs). In accordance with current Division policy, the renewal operating permit will reduce the EER frequency to semi-annual.

### NSPS Subpart A – General Conditions

Colorado Regulation No. 6 incorporates 40 CFR 60 Subpart A in two different locations: Part A, and Part B Section I.A. Part A incorporates all of the federal New Source Performance Standards. Part B establishes non-federal NSPS standards, and applies the general provisions from the federal NSPS Subpart A to these state-only standards. The turbines are subject to Part A of Reg 6 (due to NSPS subpart GG), and to Part B of Reg 6 (opacity). Therefore, the NSPS general provisions apply on both a federal and state-only basis. The state-only general provisions will be streamlined in favor of the federal general provisions.

### Construction Permit 09BO0958– Commence Operation within 18 Months

Construction Permit 09BO0958, Condition 2 states that the permit shall expire if the modification does not commence within 18 months. The modification associated with this permit is the increase in allowable operation beginning October 1, 2012, which relies on the expiration of the PPA as described above. The permit also includes backstop provisions that remove the allowable increases and revert the permit to its pre-modification requirements in the event that the PPA is renewed or a new PPA is created. Note that these backstop provisions are not limited to the 18 month timeframe following October 1, 2012, and will therefore be used to streamline out the 18-month expiration condition.

### Construction Permit 09BO0958– Review O&M Plan defining good combustion practices

This source is subject to the general duty provisions under NSPS, which require owners and operators to maintain and operate the facility and control equipment consistent with good air pollution control practices for minimizing emissions. The Division considers that this NSPS requirement establishes good combustion practices and will streamline out the O&M Plan condition.

## **IX. Discussion of Modifications Made**

### Source Requested Modifications

The renewal application received on October 5 2007 did not request any changes except to note some typographical errors in cross-references to permit conditions in the table at the beginning of Section II. The source submitted a letter received July 28, 2009 requesting that the permit include provisions for permanent like-kind replacements to the Alternative Operating Scenario (AOS).

As described in the January 23, 2013 version of the Division's Permit Section Memo 98-007, provisions for permanent turbine replacements are not allowed for sources with facility-wide potential to emit of CO<sub>2e</sub> greater than 100,000 tpy, unless the originally permitted turbine has maximum potential CO<sub>2e</sub> emissions less than 75,000 tpy. At the Valmont facility, maximum potential facility-wide emissions exceed 100,000 tpy CO<sub>2e</sub>, which is also considered to be the maximum potential CO<sub>2e</sub> emission level for each turbine, since no units at the facility have individual fuel or emission limitations. Therefore, the AOS language has been updated to include the most current language for temporary replacements only.

Following the public notice period, the applicant requested that the conditions requiring the monthly determination of the Btu content of the natural gas be changed to reference the requirements of 40 CFR Part 75. This is an acid rain source and Part 75 requirements already apply; the Division considers this change to be administrative in nature.

### **Other Modifications**

In addition to the source requested modifications, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal. The Division has also made changes to incorporate the requirements of Construction Permit 09BO0958, as described in Section III.

These changes are as follows:

#### **General**

The permit has been re-organized to use the typical format and organization for most other turbine facility operating permits in Colorado and for clarity.

#### **Page Following Cover Page**

- Revised the responsible official and permit contact information in accordance with information provided by the applicant
- It should be noted that the monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).

#### **Section I – General Activities and Summary**

- Revised the Permitted Activities description in Condition 1.1. Updated the description of the single source status of the facility with respect to the coal-fired power plant at the same location: upon expiration of the PPA, the two facilities are considered to be separate for NSR and Title V permitting purposes. Updated the non-attainment description of the area to the Division's standard language.
- Condition 1.3: the previously issued operating permit incorporated construction permit 99BO0474. Construction permit 09BO0958 (initially issued on March 8, 2010) canceled permit 99BO0474. The renewal incorporates the terms of the newest issuance of 09BO0958 as described above.
- Updated the list of state-only enforceable conditions in Condition 1.4



- Added a statement to Condition 1.5 that electronic records are acceptable.
- Updated the Alternative Operating Scenarios addressing turbine replacements (Condition 2) to the Division's current standard language.
- Condition 3.1 describes the status of the facility with respect to New Source Review requirements (both non-attainment NSR and PSD). The language has been updated to show that the facility will no longer be a major stationary source with respect to ozone upon expiration of the PPA.

#### Section II – Specific Permit Terms

- Incorporated the terms of Colorado Construction Permit 09BO0958 as described in Section III above.

#### Section III – Acid Rain Provisions

- Revised the Designated Representative and Alternate Designated Representative.
- Revised the table to include calendar years corresponding to the relevant permit term for the renewal.

#### Section IV – Permit Shield

- Updated the Reg 3 Citation for the permit shield

#### Section V – General Permit Conditions

- Updated the general permit conditions to the current version (5/22/2012).
- Updated the table of streamlined conditions (see Section VIII for a detailed discussion of streamlining)

#### Appendices

- Updated Appendices B and C (Monitoring and Permit Deviation Reports and Compliance Certification Reports) to the newest versions (2/20/2007).
- Removed the Acid Rain addresses in Appendix D, since annual certification is no longer required and submittal of quarterly reports/certifications is done electronically.
- Cleared the list of modifications from Appendix F related to the previous issuance.

#### **UPDATE: May 2013**

**Self Certification:** The draft and proposed permits included a requirement to submit a self certification by April 1, 2013. This requirement was satisfied in March 2013 and will therefore be removed from the permit in the final issuance. The Division is also including some administrative changes to the monitoring language regarding the CO and NO<sub>x</sub> CEMS. The modified language clarifies the requirements for calculating

average values for monitoring compliance with short term limits; this language change is considered to be administrative in nature is not intended to change the requirements set forth in the draft or proposed permits.

Change in Facility AIRS ID: Because the facility is no longer considered to be a single source with the PSCo Valmont Coal Plant, the Valmont combustion turbine facility is being assigned a new facility AIRS ID. This action also requires the point ID numbers to change since they are assigned sequentially. The change is as follows:

<b>Emission Unit</b>	<b>Old AIRS ID</b>	<b>New AIRS ID</b>
Inlet Air Heater AP008	013/0001/015	013/1460/001
Combustion Turbine CT007	013/0001/022	013/1460/002
Combustion Turbine CT008	013/0001/023	013/1460/003
Inlet Air Heater AP007	013/0001/024	013/1460/004

## A. Facility Emissions

Potential to Emit <sup>1</sup> (tpy)							
	PM	PM10	PM2.5	SO2	NOx	VOC	CO
<b>Power Plant Emission Units</b>							
Unit 5	808.1	743.4		8889.2	3232.4	43.6	190.1
Turbine	249.7	249.7		1997.3	2197.3	5.2	204.7
Auxiliary Boiler	0.2	0.2		0.1	10.7	0.6	9.0
Ash Handling (Silo)	5.4	5.4					
Ash Handling (Fugitive)	27.0	9.7					
Coal Handling (Crushing/Conveying)	0.5	0.2					
Coal Handling (Fugitive)	12.5	4.4					
Recycle Ash Silos	0.1	0.1					
Recycle Ash Mixers	0.3	0.3					
Lime Storage Silos	0.0	0.0					
Ball Mill Slakers	0.3	0.3					
Ash Blower	1.1	1.1					
Haul Roads (fugitive)	36.8	7.7					
<b>Total (point)</b>	<b>1065.5</b>	<b>1000.5</b>	<b>0.0</b>	<b>10886.6</b>	<b>5440.5</b>	<b>49.4</b>	<b>403.9</b>
<b>Total (fugitive dust)</b>	<b>76.3</b>	<b>21.8</b>					
<b>Combustion Turbine Facility Units</b>							
All equipment <sup>2</sup> Prior to October 1, 2012	<b>9</b>	<b>9</b>		<b>0.6</b>	<b>39</b>	<b>3.5</b>	<b>90.8</b>
All equipment <sup>2</sup> Beginning Oct 1, 2012	<b>7.8</b>	<b>7.8</b>	<b>7.8</b>	<b>0.5</b>	<b>78</b>	<b>4.9</b>	<b>181.6</b>
<b>013/0001 Total<sup>3</sup></b>							
Prior to October 1, 2012	<b>1150.8</b>	<b>1031.3</b>	<b>0.0</b>	<b>10887.2</b>	<b>5479.5</b>	<b>52.9</b>	<b>494.7</b>
Notes:							
1. PTE for the coal fired power plant is from the technical review document for the March 1, 2010 renewal of operating permit 96OPBO131. Potential to Emit for PM2.5 was not been established for the powerplant at the time of the renewal as PM2.5 emission limits were not applicable; however, PM2.5 PTE may be presumed to be equal to or less than PM10 emissions.							
2. PTE shown is for two combustion turbines and two inlet air heaters combined. PTE is listed before and after the modification authorized on October 1, 2012							
3. Totals shown include fugitive dust emissions from the power plant. Totals include both power plant and turbine facility							

Hazardous Air Pollutant Emissions <sup>1</sup> (tpy)								
	HCl	HF	Hg	Metals	Form aldehyde	n-Hexane	Acet aldehyde	BTEX
<b>Coal-Fired Power Plant Emission Units</b>	2.47	3.91	8.3E-03	7.04	2.37			6.38E-01
<b>Combustion Turbine Facility Units</b>					0.61	0.09	0.03	0.20
								<b>0.9</b>

Notes:

1. PTE for the coal fired power plant is from the technical review document for the March 1, 2010 renewal of operating permit 96OPBO131 and includes controls.

PTE for the turbine facility:

HAP emission factors are from AP-42 Table 3.1-2 (4/2000) for the turbines and 1.4-3 (7/1998) for the heaters. Emissions are calculated at the permitted fuel use rate effective October 1, 2012.

Emissions for all HAPs except n-Hexane are calculated using the turbine emission factors. The turbine emission factors are higher than the heater emission factors except for n-Hexane (for which there is no turbine emission factor). n-Hexane emissions are calculated for the heaters only at the rate of 11.5 MMBtu/hr (max total rating of the heaters) at 8760 hours per year operation.

Actual Emissions <sup>1</sup> (tpy)								
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	HAPs
<b>Power Plant Emission Units</b>								
Unit 5	15.0	13.8	13.8	1137.4	2052.6	14.6	116.8	
Turbine	0.1	0.1	0.1	0.4	12.8	0.1	3.3	
Auxiliary Boiler	0.1	0.1	0.1	0.1	5.5	0.3	4.6	
Ash Handling	10.3	5.9	4.2					
Coal Handling	7.9	2.3	2.2					
Recycle Ash Silos	0.0	0.0	0.0					
Recycle Ash Mixers	0.0	0.0	0.0					
Lime Storage Silos	0.0	0.0	0.0					
Ball Mill Slakers	0.2	0.2	0.1					
Ash Blower	0.8	0.8	0.8					
Haul Roads (fugitive)	23.1	4.9	1.7					
<b>Total (including fugitive dust)</b>	<b>57.5</b>	<b>28.2</b>	<b>22.8</b>	<b>1137.9</b>	<b>2070.9</b>	<b>15.0</b>	<b>124.7</b>	<b>3.8</b>
<b>Combustion Turbine Facility Units<sup>2</sup></b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	<b>0.0</b>	<b>6.8</b>	<b>0.3</b>	<b>14.7</b>	
<b>013/0001 Total<sup>3</sup></b>	<b>58.1</b>	<b>28.9</b>	<b>23.5</b>	<b>1137.9</b>	<b>2077.7</b>	<b>15.3</b>	<b>139.4</b>	<b>3.8</b>

Notes:

1. Actual emissions are from the Division's inventory system for 2011

2. Two turbines and two inlet air heaters combined

3. Includes fugitive dust

## **B. Determination of RACT for CO During Simple Cycle Operations at the Arapahoe Combustion Turbine Facility**

*The following is the justification used for the Arapahoe determination from the technical review document for Renewal #1 of Operating Permit No. 01OPDE237:*

The Division issued a letter to the plant manager on January 25, 2006 that approved the facility's proposed CO RACT parametric monitoring procedures. Specifically, the letter states that:

- Good combustion practices during simple cycle operation are defined as 100 ppm CO or less corrected to 15% O<sub>2</sub>, and a NO<sub>x</sub> Control Water Flowrate between 5 and 45 gpm.
- The values noted above do not apply during startup and shutdown. Startup and shutdown for the purposes of simple cycle operation are defined as: "Startup" means the setting in operation of any air pollution source for any purpose. Setting in operation for this turbine begins when fuel is injected into the turbine. Setting in operation for this turbine ends when the NO<sub>x</sub> Control Water Flow Rate reaches 5 gallons per minute. "Shutdown" means the cessation of operation of any air pollution source for any purpose. The cessation of operation for this turbine begins when the command signal is initiated by the turbine operator to shutdown the unit and ends when fuel is no longer being fired in the turbine.
- The SPRINT control system shall be used to monitor and control the operating parameters as required by the permit condition.
- In addition to the CO and water flowrate limits, the owner or operator shall comply with GE's guidelines regarding parts replacement and operation. A copy of these guidelines shall be kept on site and made available for Division inspection upon request. A log of parts replacement and operation/maintenance shall be maintained and made available for Division inspection upon request.
- The specific provisions to meet the requirements of Condition 1.5.1<sup>3</sup> will be incorporated into the permit during the next renewal.

The Division is incorporating the 100 ppm CO limit into the renewal permit. While reviewing the draft permit, SWG requested that the startup definition described above be replaced with more appropriate language based on reaching steady state operation (startup ends 20 minutes after reaching and maintaining a load of 15 MW, or 60 minutes after setting in operation, whichever occurs first), and the Division incorporated this change. Because the permit will include a new numerical limit for CO and will require compliance to be monitored directly using the existing CEMS, the parametric monitoring (water flowrate) is not necessary and will not be included.

The general requirements to follow good engineering practices, manufacturer's guidelines and good combustion practices included in various places in the previous operating permit, construction permit 99DE0473 and correspondence with the Division regarding RACT

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<sup>3</sup> Note that the reference is to the original July 1, 2005 version of the Arapahoe Combustion Turbine Facility Operating Permit; the Conditions have since been renumbered for the renewal.

parametric monitoring procedures have been streamlined out in favor of the NSPS general duty provisions.